CLMPTO

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1. (Original) An optical scanning system, comprising:

a probe comprising:

a mechanical oscillator responsive to AC voltage signals; and

an optical fiber having a free end that executes an oscillatory scanning motion in response to being mechanically driven by the mechanical oscillator; and

a processor configured to receive measured intensities of light emitted from spots of a sample scanned by light from the free end of the optical fiber, the processor configured to assign intensities to image pixels based on the measured intensities of light in a manner that compensates for variations in the density of the scanned spots.

2. (Original) The optical scanning system of claim 1, further comprising:

a detector coupled to measure the intensities of light emitted by the scanned spots and to transmit the measured intensities to the processor.

Cancelled claim 3

4. (Original) The optical scanning system of claim 3, further comprising a strut fixed to the fiber, the strut stiffening the free end more in the first direction than in the second direction.

5. (Original) The optical scanning system of claim 1, wherein the free end of the optical fiber has a non-axially symmetric cross-section.

6. (Original) The optical scanning system of claim 1, wherein the processor assigns an intensity to one of the image pixels that is an average of the measured intensities of light emitted by the scanned spots whose locations correspond to the one of the image pixels.

7. (Original) The optical scanning system of claim 1, wherein the processor selectively assigns intensities to ones of the image pixels based on the measured intensities of light emitted by either first or last scanned spots corresponding to the ones of the image pixels.

8. (Original) The optical scanning system of claim 2, further comprising:

an optical system to focus the light emitted from the free end of the scan fiber to the spots and to route light emitted by the spots to the detector, the optical system including an element that transmits the light from the fiber end and reflects the light emitted by the scanned spots.

9. (Original) The optical scanning system of claim 2, further comprising:

an optical fiber that optically connects the remote probe to the detector.

10. (Original) The scanning system of claim 1, further comprising:

a source of pulsed light; and

a portion of transmission optical fiber to deliver the pulsed light from the source to the scan probe, the portion of transmission optical fiber being a multimode fiber.

11. (Original) A process for optically scanning a sample, comprising:

moving an end of an optical fiber along a path that crosses itself by driving the fiber with a mechanical oscillator;

scanning a plurality of spots in a sample with light from the moving end of the fiber; and

assigning intensities to image pixels based on measured intensities of light emitted by the scanned spots, the assigning including tracking numbers of ones of the scanned spots that correspond to ones of the image pixels based on locations of the scanned spots.

12. (Original) The process of claim 11, further comprising:

measuring the intensities of light emitted by the spots in response to being

scanned.

13. (Original) The process of claim 12, wherein the scanning includes transmitting the light emitted by the moving end of the fiber through a material that selectively transmits scan light, and the measuring includes reflecting a portion of the light emitted by the scanned spots off the material.

14. (Original) The process of claim 11, wherein the assigning identifies the intensity of one of the image pixels with an average of the measured intensities of light emitted by the scanned spots corresponding to the one of the image pixels.

15. (Original) The process of claim 11, wherein the assigning identifies the intensities of ones of the image pixels with the measured intensities of light emitted by first ones of the scanned spots corresponding to the ones of the image pixels.

16. (Original) The process of claim 11, wherein the moving includes applying an AC voltage signal with a superposition of a first frequency and a second frequency to the oscillator, the first and second frequencies being near resonant frequencies for motion of the fiber in first and second directions, respectively.

17. (Original) A process of claim 16, wherein the assigning further comprises:

finding locations of the scanned spots from the AC voltage signal and identifying that one of the scanned spots corresponds to one of the image pixels based on the found location of the one of the scanned spots.

18. (Original) The process of claim 11, wherein the light emitted from the moving end of the fiber and the light whose intensities are measured have different wavelengths.

19. (Original) The process of claim 11, wherein the measured intensities include contributions from light emitted from the moving end and scattered by the scanned spots.